

LSI DOCKET NO. 03-1120

CLAIMS:

What is claimed is:

1. A system for enhancing data throughput on a bus in a SCSI topology, comprising:
5 an initiating unit, said initiating unit operable to initiate transactions on the bus;
at least one target unit, said at least one target unit operable to execute commands
received from said initiating unit; and
a nexus pipeline unit, said nexus pipeline unit coupled to at least one unit of said
initiating unit and said at least one target unit, said nexus pipeline unit operable to:
10 receive a plurality of nexuses, each nexus of said plurality of nexuses related to a
transaction initiated on the bus; and
form an association for said plurality of nexuses received.
2. The system of Claim 1, wherein said initiating unit is an initiator.
- 15 3. The system of Claim 1, wherein said at least one target unit comprises a target drive.
4. The system of Claim 1, wherein said initiating unit is a SCSI adapter.
- 20 5. The system of Claim 1, wherein said initiating unit is a controller.
6. The system of Claim 1, wherein said association for said plurality of nexuses comprises a
plurality of nexus attributes associated as a related grouping of attributes.
- 25 7. The system of Claim 1, wherein said nexus pipeline unit comprises a plurality of load
stages, wherein at least one load stage of said plurality of load stages is operable to load at least a
first nexus attribute or shift at least one nexus attribute to a second load stage of said plurality of
load stages.

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8. The system of Claim 1, wherein said nexus pipeline unit comprises a plurality of latching units and a plurality of multiplexing units.

9. The system of Claim 1, wherein said nexus pipeline unit comprises a plurality of load stages, wherein at least one load stage of said plurality of load stages includes at least one flip-flop device and at least one multiplexer device coupled together.

10. A nexus pipeline circuit, comprising:

a plurality of load stages;

an input coupled to said plurality of load stages; and

an output coupled to said plurality of load stages, wherein each load stage of said plurality of load stages is operable to:

store a first plurality of nexus attributes; and

shift a second plurality of nexus attributes to a second load stage of said plurality of load stages, said input including at least one of said first plurality of nexus attributes and said second plurality of nexus attributes, and said output including an association of said at least one of said first plurality of nexus attributes and said second plurality of nexus attributes.

11. The nexus pipeline circuit of Claim 10, wherein each load stage of said plurality of load stages includes at least one data latching device and at least one data shifting device.

12. The nexus pipeline circuit of Claim 10, wherein each load stage of said plurality of load stages includes at least one flip-flop and at least one multiplexer.

13. A method for enhancing data throughput on a bus in a SCSI topology, the method comprising the steps of:

an initiator unit initiating transactions on the bus;

a target unit executing commands associated with said initiating step;

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coupling said initiating unit to said target unit with a nexus pipeline unit, said nexus pipeline unit performing the steps of:

receiving a plurality of nexuses, each nexus of said plurality of nexuses related to a transaction initiated on the bus; and

5 forming an association for said plurality of nexuses received.

14. The method of Claim 13, wherein said initiating unit is an initiator.

15. The method of Claim 13, wherein said target unit comprises a target drive.

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16. The method of Claim 13, wherein said initiating unit is a SCSI adapter.

17. The method of Claim 13, wherein said initiating unit is a controller.

15 18. The method of Claim 13, wherein said association for said plurality of nexuses comprises a plurality of nexus attributes associated as a related grouping of attributes.

19. The method of Claim 13, wherein said nexus pipeline unit comprises a plurality of load stages, at least one load stage of said plurality of load stages performing the steps of:

20 loading at least a first nexus attribute; and

shifting at least one nexus attribute to a second load stage of said plurality of load stages.

20. The method of Claim 13, wherein said nexus pipeline unit comprises a plurality of latching units and a plurality of multiplexing units.

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21. The method of Claim 13, wherein said nexus pipeline unit comprises a plurality of load stages, wherein at least one load stage of said plurality of load stages includes at least one flip-flop device and at least one multiplexer device.

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22. A computer program product for enhancing data throughput on a bus in a SCSI topology, comprising:

first instructions for initiating transactions on the bus;

second instructions for executing commands associated with said first instructions;

5 third instructions for receiving a plurality of nexuses;

fourth instructions for relating each nexus of said plurality of nexuses to a transaction initiated on the bus; and

fifth instructions for forming an association for said plurality of nexuses received.

10 23. The computer program product of Claim 22, wherein said initiating unit is an initiator.

24. The computer program product of Claim 22, wherein said target unit comprises a target drive.

15 25. The computer program product of Claim 22, wherein said initiating unit is a SCSI adapter.

26. The computer program product of Claim 22, wherein said initiating unit is a controller.